IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: **Bera, et al.**	§	Case: **8549/ETCH/DRIE/JB1**
Serial No.: **10/821,310**	§	Filed: **April 8, 2004**
Examiner: **Zervigon, Rudy**	§	Group Art Unit: **1763**
Confirmation No.: **9721**	§	
Title: **APPARATUS FOR CONTROLLING GAS FLOW IN A SEMICONDUCTOR SUBSTRATE PROCESSING CHAMBER**	§	

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

APPEAL BRIEF

The Appellants submit this Appeal Brief to the Board of Patent Appeals and Interferences to appeal the decision of the Examiner of Group Art Unit 1763 dated November 14, 2006, finally rejecting claims 1-3, 5-11, 13-16 and 18-30. This Appeal Brief is believed to be timely since mailed by the due date of May 21, 2007, as set by mailing a Notice of Appeal on March 21, 2007. The fee of $500.00 for filing this brief has been paid with the submission of this paper using the Patent Electronic Business Center. The Commissioner is authorized to charge any additional fees due for this Appeal Brief to Deposit Account No. 20-0782.

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Real Party in Interest

The real party in interest is Applied Materials, Inc., located at 3050 Bowers Avenue, Santa Clara, California 95054.

Related Appeals and Interferences

The Appellants assert that no other appeals or interferences are known to the Appellants, the Appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1-3, 5-11, 13-16 and 18-30 are pending in the application. Claims 1-22 were originally presented in the application. Claims 4, 12 and 17 have been canceled without prejudice and claims 23-25 have been added in the Response to Office Action dated August 26, 2005. Claims 26-28 have been added in the Response to Final Office Action dated November 4, 2005. Claims 29-30 have been added in the Response to Office Action dated June 5, 2006. Claim 23 has been amended in the Response to Final Office Action dated November 14, 2006. The Examiner, in his Advisory Action, has maintained the rejection of the pending claims, as amended on November 14, 2006, as being unpatentable for the same reasons set forth in the Final Office Action. The final rejections of claims 1-3, 5-11, 13-16 and 18-30 are now appealed. The pending claims are shown in the attached Claims Appendix.

Status of Amendments

An after final amendment was filed January 14, 2007, amending claim 23 in response to the Final Office Action dated November 14, 2006. The amendment of claim 23 has not been entered. The Appellants are hereby appeal the rejection of claim 23 in its present state. A copy of the pending claims is provided in the Claims Appendix.

Summary of Claimed Subject Matter

Claimed embodiments of the invention provide an apparatus for controlling the flow of a gas between a process region and an exhaust port in a semiconductor substrate processing chamber. (Abstract, paragraph 5). In the embodiment of independent claim 1, an apparatus for controlling the flow of a gas between a process region and an exhaust port in a semiconductor substrate processing chamber includes at least one restrictor plate (208) supported within the semiconductor processing chamber (110) by a plurality of support pins (204) and adapted to at least partially circumscribe a substrate support pedestal (116), the restrictor plate (208) adapted to control the flow of at least one gas flowing between the process region (180) and the exhaust port (135).

In the embodiment of independent claim 10, a semiconductor substrate processing system includes a processing chamber (110), a substrate support pedestal (116) disposed in the chamber (110), a gas inlet (132) formed in the chamber (110) above the pedestal (116) for supplying a process gas into a process region (180) above the support pedestal (116), an exhaust port (135) formed in a wall (130) of the chamber (110), and at least one restrictor plate (208) supported within the processing chamber (110) by a plurality of support pins (204) and at least partially circumscribing the substrate support pedestal (116), the restrictor plate (208) adapted to control the flow of at least one gas flowing between the process region (180) and the exhaust port (135).

In the embodiment of independent claim 23, a semiconductor substrate processing system includes a processing chamber (110), a substrate support pedestal (116) disposed in the processing chamber (110), a gas inlet (132) formed in the chamber (110) above the pedestal (116) for supplying a process gas into a process region (180) above the support pedestal (116), an exhaust port (135) formed in a wall (130) of the processing chamber (110), and a restrictor plate (208) supported within the processing chamber (110) in a laterally space-apart relation relative to the substrate support pedestal (116) and sidewalls (130) of the processing chamber (110), wherein a first predetermined gap (160) is between the substrate support pedestal (116) and the restrictor plate (208), and a second predetermined gap (158) is between the restrictor plate (208) and the sidewalls (130) of the processing chamber (110), and wherein the

restrictor plate (208) at least partially circumscribes the substrate support pedestal (116) and is adapted to control the flow of at least one gas flowing between the process region (180) and the exhaust port (135).

In the embodiment of independent claim 28, a semiconductor substrate processing system includes a processing chamber (110), a substrate support pedestal (116) disposed in the processing chamber (110), a gas inlet (132) formed in the processing chamber (110) above the pedestal (116) for supplying a process gas into a process region (180) defined in the processing chamber (110) above the support pedestal (116), an exhaust port (135) formed in a wall (130) of the processing chamber (110), a restrictor plate (208) supported within the processing chamber (110) in a laterally space-apart relation relative to the support pedestal (116) and sidewalls (130) of the processing chamber (110), the restrictor plate (208) at least partially circumscribing the substrate support pedestal (116) and positioned above the exhaust port (135) and a plurality of pins (204) extending between the restrictor plate (208) and a bottom (108) of the processing chamber (110).

Grounds of Rejection to be Reviewed on Appeal

Claims 23-24 stand rejected as being unpatentable over *Li* (U.S. Patent No. 6,448,536).

Claims 1-3, 5-6, 9-11, 14-16, 18 and 25-30 stand rejected as being unpatentable over *Komino* in view of *Yonenaga* (U.S. Patent No. 5,972,114).

Claims 7-8, 13 and 19-22, stand rejected as being unpatentable over *Komino* in view of *Yonenaga*.

ARGUMENTS

ISSUES UNDER 35 USC § 103(a)

Claims 23-24

Claims 23-24 stand rejected as being unpatentable over *Li* (U.S. Patent No. 6,448,536). The Appellants disagree.

Independent claim 23 recites elements not taught, motivated, or even suggested by *Li*. The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. *See* MPEP § 2142. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See* MPEP § 2143. The rejection failed to establish at least the first and third criteria and even the second criteria.

Li teaches an annular rectifying plate 26 having holes 25 used to control the flow of gases being pumped out of a process chamber. The outer edge of the rectifying plate is in contact with and supported by the inner surface of the walls of the process chamber. The inner edge of the rectifying plate is in contact with and supported by a shield frame 5. The shield frame 5 includes concentrically disposed inner and outer cylinders and a flat annular portion. An isolator 8 bridges the shield frame 5 and a substrate mount plate 3. The substrate mount plate 3 supports a wafer W in the center of the processing chamber. Notably, *Lin's* mount plate, isolator, shield frame and rectifying plate provide a contiguous, continuous surface that extends completely across the process chamber. Thus, *Li* does not teach or suggest a restrictor plate supported within the processing chamber in a laterally space-apart relation relative to the substrate support pedestal and sidewalls of the processing chamber, as recited by claim 23. Furthermore, *Li* does not teach or suggest a first predetermined gap defined between a

substrate support pedestal and a restrictor plate and a second predetermined gap defined between the restrictor plate and sidewalls of the processing chamber, as recited by claim 23.

The Examiner asserts that since a shield frame 5 connects the substrate mount plate to the restrictor plate, a gap is defined between the substrate mount plate and the restrictor plate. *See* Page 2, Lines 12-13 of Final Office Action. The Appellants disagree.

As discussed above, the shield frame 5 is used to connect the substrate mount plate through an isolator 8 to the rectifying plate 26, which together form a contiguous surface that physically separates the chamber into two regions in a manner that does not permit flow between those components. As such, a gap is not present as asserted by the Examiner.

The standard for claim interpretation during the examination of a patent application by the U.S. Patent and Trademark Office is that "claims ... are to be given their broadest reasonable interpretation consistent with the specification, and ... claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art." Moreover, this interpretation must be consistent with one that would be reached by those skilled in the art. *In re American Academy of Science Tech Center*, 367 F.3d 1359, 1365; 70 U.S.P.Q. 2D (BNA) 1827 (Fed. Cir. 2004), citing *In re Bond*, 910 F.2d 831, 833 (Fed. Cir. 1990) and *In re Cortright*, 165 F.3d 1353, 1358 (Fed. Cir. 1999) (emphasis added). Here, the Examiner has taken an unduly broad, and thus, impermissible interpretation of a gap being present between the rectifying plate and substrate mount plate of *Li* because such an interpretation is inconsistent with the specification as it would be interpreted by one of ordinary skill.

In the present application, the claimed gap element is more than a mere separation of parts. In fact, the restrictor plate is already claimed in "a laterally space-apart relation relative to the substrate support pedestal and sidewalls of the processing chamber." *See*, claim 23. Moreover, throughout the specification, the gap is used to describe a passage defined between components used to control gas flow between the upper and lower regions of the processing chamber, thereby allowing compensation for pumping asymmetries due to chamber geometries. As such, the gap is a flow regulating

feature. The Examiner's interpretation of a gap that is completely filled by a solid object which does not allow gases to flow therethrough is not only contrary to the convention utilized by the Appellants throughout the specification, but would render the invention inoperable. In other words, one skilled in the art would not adopt an interpretation that would render inoperable the invention as described in the specification. As such, the Examiners interpretation is not consistent with the specification nor made in a manner consistent with an interpretation that would be made by those skilled in the art. Accordingly, there is no teaching, suggestion or modification in *Li* that would yield a first predetermined gap defined between a substrate support pedestal and a restrictor plate and a second predetermined gap defined between the restrictor plate and sidewalls of the processing chamber, as recited by claim 23.

Furthermore, there was no teaching in Li that could have motivated one of ordinary skill in the art to derive to the elements of claim 23. The Examiner asserts that a motivation may be found to optimize the dimension of *Li*'s restrictor plate by adding an additional restrictor plate to provide a second gap. The Appellants disagree. The Appellants submit that the Examiner provides no evidence of a teaching in *Li* or elsewhere on the record that would suggest adding a second restrictor plate. Moreover, adding a second restrictor plate would not yield a second gap consistent with the Appellant's teaches, as discussed above.

As such, a *prima facie* case of obviousness has not been established as *Li* fails to teach or suggest each and every claimed element, and fails to provide motivation to modify *Li* in a manner that would yield the invention of claim 23. Thus, the Appellants submit that independent claim 23 is patentable over *Li* at least for the reasons stated above.

Claim 24 is patentable over *Li* at least by its dependency from claim 23. Furthermore, dependent claim 24 specifically recites the additional elements of "the restrictor plate further comprises a plurality of removable arc segments." Since *Li* does not teach, motivate, or suggest that the restrictor plate may be comprised of a plurality of removable arc segments, claim 24 is patentable over *Li*.

Accordingly, the Appellants request the reversal of the rejection to claims 23-24 and the allowance of the same.

Claims 1-3, 5-6, 9-11, 14-16, 18 and 25-30

Claims 1-3, 5-6, 9-11, 14-16, 18 and 25-30 stand rejected as being unpatentable over *Komino* (U.S. Patent No. 6,156,151)., in view of *Yonenaga* (U.S. Patent No. 5,972,114). The Appellants disagree.

Claim 25 depends from claim 23. Claim 23 has not been rejected as being unpatentable over *Komino* in view of *Yonenaga*. Thus, claim 25 is patentable over *Komino* in view of *Yonenaga* at least by virtue of its dependency from claim 23. Nevertheless, additional arguments for the patentability of claim 25 over *Komino* in view of *Yonenaga* are provided below.

Independent claims 1, 10, 23 and 28 recite elements not taught or suggested or motivated by the combination of *Komino* and *Yonenaga*. *Komino* teaches a lower baffle plate 118 which is constituted by part of a central casing part CC that comprises part of the sidewalls of the processing chamber 101 (column 6, lines 26-27). A suspension ring 118b surrounds the central portion of suscepter 114. The outer edge of the ring 118b is attached to the outer cylinder of the central casing part CC that comprises the sidewall of the chamber while the inner edge is attached to the pedestal. As such, the lower baffle plate 118 of *Komino* is not supported by a plurality of support pins. Furthermore, *Komino* does not teach or suggest a restrictor plate supported within a processing chamber in a laterally spaced-apart relation, or a first predetermined gap between the substrate support pedestal and the restrictor plate, and a second predetermined gap between the restrictor plate and the sidewalls of the processing chamber. In contrast to the claimed invention, *Komino* discloses that baffle plate 118 attached to the central casing part CC is part of the chamber wall and also, by suspension ring 118b, is attached to the suscepter. Thus, the baffle plate of *Komino* can not be in a space-apart relation with the wall that it integrally extends therefrom or to the pedestal. Therefore, *Komino* does not teach or suggest a restrictor plate supported by a plurality of support pins as recited by claims 1, 10, 25 and 28; or a restrictor plate in a laterally space-apart relation relative to the sidewalls of a processing chamber, as recited by the claim 28; or wherein a first predetermined gap is between the substrate support pedestal and the restrictor plate, and a second predetermined gap is between the restrictor plate and the sidewalls of the processing chamber, as recited by the claims 25 and 28.

Yonenaga teaches a flow regulator plate 46 that is supported within a process chamber 12 by a single annular support column 48. The flow regulator plate 46 is also coupled to the sidewalls of the process chamber 12. Therefore, regulator plate 46 of *Yonenaga* is not supported by a plurality of pins as asserted by the Examiner. Moreover, as the baffle plate of *Komino* integrally extends from the chamber wall and bridges to the substrate support, there is no motivation to separately support the baffle plate with an annular ring as taught by *Yonenaga*.

The Examiner asserts that the motivation to add *Yonenaga*'s single annular support column 48 (referred erroneously as pins) to *Komino*'s restrictor plate and to add an additional restrictor plate may be found for providing an additional support and a second gap. However, there is no motivation to add an additional support because *Komino's* restrictor plate itself is a part of the chamber wall. There is no teaching or suggestion in *Komino* of a need for an additional support. Therefore, there is no need for an "additional" support, as asserted by the Examiner. The additional support added to part of the chamber wall would be redundant to the *Komino's* restrictor plate. Even if the annular support column of *Yonenaga* was utilized in *Komino's* chamber, the claimed elements of a plurality of support pins are still not taught or suggested by any of the references of record. As such, one of ordinary skill in the art would have not been motivated by *Komino* and *Yonenaga* to provide additional support by a plurality of support pins.

Furthermore, neither *Komino* nor *Yonenaga* provides motivation to incorporate an additional restrictor plate to *Komino's* integrated restrictor plate to create a gap because, as discussed above, *Komino's* restrictor plate itself is a part of the chamber wall. Accordingly, one of ordinary skill in the art would not be motivated, in light of the cited references, to add an additional restrictor plate to *Komino's* restrictor plate/chamber wall in a manner that would create a gap. Therefore, *Yonenaga* fails to teach, show, or suggest a modification to *Komino* that would yield at least one restrictor plate supported within the semiconductor processing chamber by a plurality of support pins, as recited by claims 1, 10 and 25, or a restrictor plate in a laterally space-apart relation relative to the sidewalls of a processing chamber wherein a first predetermined gap is between the substrate support pedestal and the restrictor plate, and a second

predetermined gap is between the restrictor plate and the sidewalls of the processing chamber, as recited by 25 and 28.

As such, a *prima facie* case of obviousness has not been established as *Yonenaga* fails to teach, show, or suggest a modification to *Komino* that yields every claimed element of claims 1, 10, 25 and 28. Thus, the Appellants submit that claims 1, 10, 25 and 28 are patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Claims 2-3, 5-6, 9, 11, 14-16, 18, 26-27, and 29-30 are patentable over *Komino* in view of *Yonenaga* at least by their respective dependency from claims 1, 10 and 28.

Furthermore, claim 2 specifically recites the additional elements of "a base adapted to be coupled to a bottom of the processing chamber, and a support ring coupled to the base via the plurality of support pins in a vertically spaced apart orientation, wherein the at least one restrictor plate is coupled to the support ring." *Yonenaga* does not teach or suggest a modification to *Komino* which would yield such claimed features. Accordingly, claim 2 is patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Claim 3 specifically recites the additional elements of "the at least one restrictor plate is configured to be laterally spaced apart from the substrate support pedestal and an interior wall of the processing chamber." *Yonenaga* does not teach or suggest a modification to *Komino* which would yield such claimed features. Accordingly, claim 3 is patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Claim 5 specifically recites the additional elements of "the support pins retain the supporting ring in a non-parallel orientation with respect to a plane defined by a substrate support surface of the substrate support pedestal." *Yonenaga* does not teach or suggest a modification to *Komino* which would yield such claimed features. Accordingly, claim 5 is patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Claim 11 specifically recites the additional elements of "a base adapted to be coupled to a bottom of the processing chamber, and a support ring coupled to the base via the plurality of support pins in a vertically spaced apart orientation, wherein the at least one restrictor plate is coupled to the support ring." *Yonenaga* does not teach or

suggest a modification to *Komino* which would yield such claimed features. Accordingly, claim 11 is patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Claim 16 specifically recites the additional elements of "at least a portion of an outer edge of the plurality of restrictor plates reduces a gap defined between the outer edge and an inner wall of the chamber proximate the exhaust port." *Yonenaga* does not teach or suggest a modification to *Komino* which would yield such claimed features. Accordingly, claim 16 is patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Claim 26 specifically recites the additional elements of "a length of the support pins is adjustable." *Yonenaga* does not teach or suggest a modification to *Komino* which would yield such claimed features. Accordingly, claim 26 is patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Claim 29 specifically recites the additional elements of "the at least one restrictor plate is supported within the processing chamber in a laterally space-apart relation relative to the substrate support pedestal and sidewalls of the processing chamber, and a first predetermined gap is between the substrate support pedestal and the restrictor plate, and a second predetermined gap is between the restrictor plate and the sidewalls of the processing chamber." *Yonenaga* does not teach or suggest a modification to *Komino* which would yield such claimed features. Accordingly, claim 29 is patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Claim 30 specifically recites the additional elements of "the at least one restrictor plate is supported within the processing chamber in a laterally space-apart relation relative to the substrate support pedestal and sidewalls of the processing chamber, and a first predetermined gap is between the substrate support pedestal and the restrictor plate, and a second predetermined gap is between the restrictor plate and the sidewalls of the processing chamber." *Yonenaga* does not teach or suggest a modification to *Komino* which would yield such claimed features. Accordingly, claim 30 is patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Thus, claims 1-3, 5-6, 9-11, 14-16, 18 and 25-30 are patentable over *Komino* and *Yonenaga*. Accordingly, the Appellants request the reversal of the rejection to claims 1-3, 5-6, 9-11, 14-16, 18 and 25-30 and the allowance of the same.

Claims 7-8, 13 and 19-22

Claims 7-8, 13 and 19-22, stand rejected as being unpatentable over *Komino* in view of *Yonenaga*. The Appellants disagree.

Claims 7, 8, 13, and 19-22 depend directly or indirectly from claims 1 and 10. As such, claim 7, 8, 13, and 19-22 are patentable over *Komino* and *Yonenaga* at least by virtue of their dependency from claims 1 and 10 because *Yonenaga* does not teach or suggests a modification to *Komino* that yields at least one restrictor plate supported within the semiconductor processing chamber by a plurality of support pins, as recited by claims 1 and 10.

Furthermore, claims 7-8 and 19-21 specifically recite the additional elements of the restrictor plate having "a width that is wider at one portion of the restrictor plate than at another portion of the restrictor plate." *Yonenaga* does not teach or suggest a modification to *Komino* which would yield such claimed features. Accordingly, claims 7-8 and 19-21 are patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Claim 13 specifically recites the additional elements of "the support pins retain the supporting ring non-parallel with respect to a plane defined by a substrate support surface of the substrate support pedestal." *Yonenaga* does not teach or suggest a modification to *Komino* which would yield such claimed features. Accordingly, claim 13 is patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Claim 20 specifically recites the additional elements of "the portion having the wider width is positioned proximate the exhaust port." *Yonenaga* does not teach or suggest a modification to *Komino* which would yield such claimed features. Accordingly, claim 20 is patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Claim 21 specifically recites the additional elements of "at least a portion of an outer edge of the one restrictor plate reduces a gap defined between the outer edge and an inner wall of the chamber along one section proximate the exhaust port." *Yonenaga* does not teach or suggest a modification to *Komino* which would yield such claimed features. Accordingly, claim 21 is patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Claim 22 specifically recites the additional elements of "wherein the at least one restrictor plate is one restrictor plate having an annular shape which completely surrounds the substrate support pedestal and a width that is wider at one portion of the one restrictor plate than at another portion of the one restrictor plate, and wherein a portion of an outer edge of the one restrictor plate contacts an inner wall of the chamber at least in a location proximate the exhaust port." *Yonenaga* does not teach or suggest a modification to *Komino* which would yield such claimed features. Accordingly, claim 22 is patentable over *Komino* in view of *Yonenaga* at least for the reasons stated above.

Thus, claims 7-8, 13 and 19-22 are patentable over the combination of *Komino* and *Yonenaga*. Accordingly, the Appellants request the reversal of the rejection to claims 7-8, 13 and 19-22 and the allowance of the same.

CONCLUSION

For the reasons advanced above, the Appellants respectfully urge that the rejections of claims 1-3,5-11, 13-16 and 18-30 as being unpatentable under 35 U.S.C. §103 is improper. Reversal of the rejections in this appeal is requested.

Respectfully submitted,

May 21, 2007
Date

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CLAIMS APPENDIX

1. (Previously Presented) Apparatus for controlling the flow of a gas between a process region and an exhaust port in a semiconductor substrate processing chamber, comprising:

at least one restrictor plate supported within the semiconductor processing chamber by a plurality of support pins and adapted to at least partially circumscribe a substrate support pedestal, the restrictor plate adapted to control the flow of at least one gas flowing between the process region and the exhaust port.

2. (Previously Presented) The apparatus of claim 1, further comprising:

a base adapted to be coupled to a bottom of the processing chamber; and

a support ring coupled to the base via the plurality of support pins in a vertically spaced apart orientation, wherein the at least one restrictor plate is coupled to the support ring.

3. (Previously Presented) The apparatus of claim 2, wherein the at least one restrictor plate is configured to be laterally spaced apart from the substrate support pedestal and an interior wall of the processing chamber.

4. (Cancelled)

5. (Previously Presented) The apparatus of claim 3, wherein the support pins retain the supporting ring in a non-parallel orientation with respect to a plane defined by a substrate support surface of the substrate support pedestal.

6. (Previously Presented) The apparatus of claim 1, wherein the at least one restrictor plate is one restrictor plate having an annular shape which at least partially circumscribes the substrate support pedestal.

7. (Previously Presented) The apparatus of claim 6, wherein the restrictor plate has a width that is wider at one portion of the restrictor plate than at another portion of the restrictor plate the restrictor plate has a width that is wider at one portion of the restrictor plate than at another portion of the restrictor plate.

8. (Original) The apparatus of claim 7, wherein the portion having the wider width is adapted for positioning proximate the exhaust port.

9. (Original) The apparatus of claim 1, wherein the at least one restrictor plate further comprises a plurality of restrictor plates, wherein each restrictor plate abuts at least one other restrictor plate.

10. (Previously Presented) A semiconductor substrate processing system, comprising:

a processing chamber;

a substrate support pedestal disposed in the chamber;

a gas inlet formed in the chamber above the pedestal for supplying a process gas into a process region above the support pedestal;

an exhaust port formed in a wall of the chamber; and

at least one restrictor plate supported within the processing chamber by a plurality of support pins and at least partially circumscribing the substrate support pedestal, the restrictor plate adapted to control the flow of at least one gas flowing between the process region and the exhaust port.

11. (Previously Presented) The system of claim 10, further comprising:

a base adapted to be coupled to a bottom of the processing chamber; and

a support ring coupled to the base via the plurality of support pins in a vertically spaced apart orientation, wherein the at least one restrictor plate is coupled to the support ring.

12. (Cancelled)

13. (Previously Presented) The system of claim 11 wherein the support pins retain the supporting ring non-parallel with respect to a plane defined by a substrate support surface of the substrate support pedestal.

14. (Original) The system of claim 10, wherein the at least one restrictor plate is a plurality of restrictor plates having an arcuate shape.

15. (Original) The system of claim 14, wherein the plurality of restrictor plates substantially surround the substrate support pedestal.

16. (Previously Presented) The system of claim 15, wherein at least a portion of an outer edge of the plurality of restrictor plates reduces a gap defined between the outer edge and an inner wall of the chamber proximate the exhaust port.

17. (Cancelled)

18. (Previously Presented) The system of claim 10, wherein the one restrictor plate has an annular shape which substantially surrounds the substrate support pedestal.

19. (Original) The system of claim 18, wherein the one restrictor plate has a width that is wider at one portion of the one restrictor plate than at another portion of the one restrictor plate.

20. (Previously Presented) The system of claim 19, wherein the portion having the wider width is positioned proximate the exhaust port.

21. (Previously Presented) The system of claim 20, wherein at least a portion of an outer edge of the one restrictor plate reduces a gap defined between the outer edge and an inner wall of the chamber along one section proximate the exhaust port.

22. (Previously Presented) The system of claim 10, wherein the at least one restrictor plate is one restrictor plate having an annular shape which completely surrounds the substrate support pedestal and a width that is wider at one portion of the one restrictor plate than at another portion of the one restrictor plate, and wherein a portion of an outer edge of the one restrictor plate contacts an inner wall of the chamber at least in a location proximate the exhaust port.

23. (Previously Presented) A semiconductor substrate processing system, comprising:

a processing chamber;

a substrate support pedestal disposed in the processing chamber;

a gas inlet formed in the chamber above the pedestal for supplying a process gas into a process region above the support pedestal;

an exhaust port formed in a wall of the processing chamber; and

a restrictor plate supported within the processing chamber in a laterally space-apart relation relative to the substrate support pedestal and sidewalls of the processing chamber, wherein a first predetermined gap is between the substrate support pedestal and the restrictor plate, and a second predetermined gap is between the restrictor plate and the sidewalls of the processing chamber, and wherein the restrictor plate at least partially circumscribes the substrate support pedestal and is adapted to control the flow of at least one gas flowing between the process region and the exhaust port.

24. (Previously Presented) The system of claim 23, wherein the restrictor plate further comprises a plurality of removable arc segments.

25. (Previously Presented) The system of claim 23 further comprising:

a plurality of support pins coupling the restrictor plate to a bottom of the processing chamber.

26. (Previously Presented) The apparatus of claim 1, wherein a length of the support pins is adjustable.

27. (Previously Presented) The apparatus of claim 1, wherein the restrictor plate has an oval profile.

28. (Previously Presented) A semiconductor substrate processing system, comprising:

a processing chamber;

a substrate support pedestal disposed in the processing chamber;

a gas inlet formed in the processing chamber above the pedestal for supplying a process gas into a process region defined in the processing chamber above the support pedestal;

an exhaust port formed in a wall of the processing chamber;

a restrictor plate supported within the processing chamber in a laterally space-apart relation relative to the support pedestal and sidewalls of the processing chamber, the restrictor plate at least partially circumscribing the substrate support pedestal and positioned above the exhaust port; and

a plurality of pins extending between the restrictor plate and a bottom of the processing chamber.

29. (Previously Presented) The apparatus of claim 1, wherein:

the at least one restrictor plate is supported within the processing chamber in a laterally space-apart relation relative to the substrate support pedestal and sidewalls of the processing chamber; and

a first predetermined gap is between the substrate support pedestal and the restrictor plate, and a second predetermined gap is between the restrictor plate and the sidewalls of the processing chamber.

30. (Previously Presented) The system of claim 10, wherein:

the at least one restrictor plate is supported within the processing chamber in a laterally space-apart relation relative to the substrate support pedestal and sidewalls of the processing chamber; and

a first predetermined gap is between the substrate support pedestal and the restrictor plate, and a second predetermined gap is between the restrictor plate and the sidewalls of the processing chamber.

EVIDENCE APPENDIX

The Appellants state that there is no evidence submitted under 37 C.F.R. §1.130, 1.131 or 1.132, or other evidence entered by the Examiner or relied upon by the Appellants in the Appeal.

RELATED PROCEEDINGS APPENDIX

No copies of decisions rendered by a court or the Board in the related appeal or interference listed on page 4 of this Brief are included as there have been no decisions by the court or the Board in the related appeal or interference listed on page 4 of this Brief.